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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,757	10/05/2006	Seok Kyu Park	PBC-0018	2370
34610 7590 07/20/2009 KED & ASSOCIATES, LLP P.O. Box 221200 Chantilly, VA 20153-1200			EXAMINER HALL, COREY JOHN	
			ART UNIT 3743	PAPER NUMBER
			MAIL DATE 07/20/2009	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/565,757	Applicant(s) PARK ET AL.	
	Examiner COREY HALL	Art Unit 3743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 16-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: _____ |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :01/24/2006, 05/18/2006, 08/25/2008, 02/13/2009.

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DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I, claims 1-15 in the reply filed on 5/15/2009 is acknowledged. The traversal is on the ground(s) that the subject matter is sufficiently related that a search for one designated invention would encompass a search for the remaining designated invention and that a search and examination of the entire application can be made without serious burden. This is not found persuasive because the semi-drying operation is anticipated by Hirooka et al. (US Patent No. 4, 843,671) as stated in the Election/Restriction Requirement resulting in a lack of unity a posteriori. Furthermore, a search for the invention of Group I, claims 1-15 for a washing tub rotated at increasing dehydration speed would require a search in class 34, subclass 596 while a search for the invention of Group II, claims 16-28 for a cover ventilating structure for a washing machine would require a search in class 68, subclass 196.

The requirement is still deemed proper and is therefore made FINAL.

2. Claim 16-28 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 5/15/2009.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

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Specification

4. The disclosure is objected to because of the following informalities: on page 5, line 7, “cloth,.” should be “cloth.”.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2, 4, 7, 8, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Kim et al. (US Patent No. 6,553,596 B2).

7. Regarding claims 1, 2, 4, 7, 8, and 10, Kim et al. discloses a semi-drying (fig. 4 showing dehydration and disentanglement repeated plural times which is similar to Applicant's Specification at page 1, lines 5-6) method of a washing machine (col. 2, lines 4-13 describing a method for controlling a washing machine using a plural number of intermittent spin-drying operations) comprising: dehydrating cloth by centrifugal force (col. 4, lines 17-22 describing a large amount of water being discharged through rotation) by rotating a washing tub at an increasing dehydration speed (fig. 4 showing an RPM1 and then an RPM2), step-by-step (col. 4, lines 3-13 describing the spin-drying operation reaching a first rotation speed, maintaining that rotation speed, and then accelerating to a second rotation speed, note that the parenthesis stating “rpm 2, about 300 to 400 rpm” at col. 4, lines 7-8 appears to be a mistake), until the dehydration speed of the washing tub reaches a designated speed (col. 4, lines 9-11 describing accelerating

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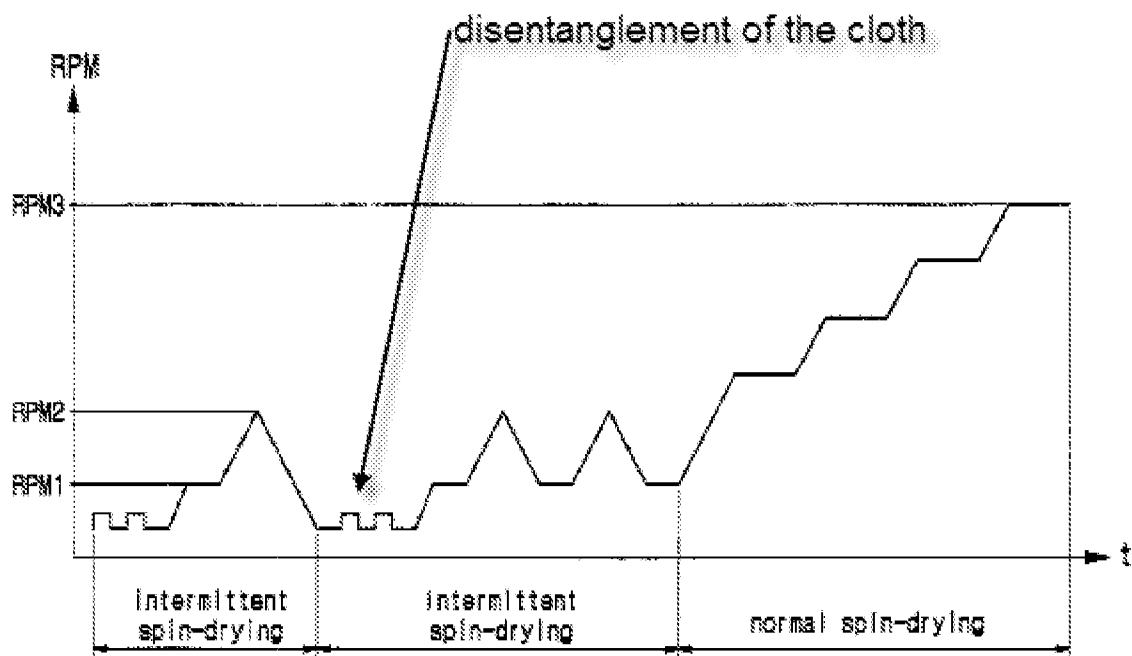
the motor until a second rotation speed RPM2 of about 300 to 400 rpm and then stopping the motor), said dehydration of the cloth being repeated plural times (fig. 4 showing the dehydration being repeated plural times); and disentangling (“disentangling” fig. 4, “disentangling of the laundry is carried out by the rotation of a motor” col. 4, lines 4-5) cloth by agitatedly rotating (fig. 4 showing in the disentangling region the rotating being short starts and stops of the motor) the washing tub prior to the next dehydration (fig. 4 showing the disentangling occurring just before the washing tub is accelerated to RPM1 and RPM2 in the dehydration step) of the cloth by way of the repetition of the dehydration (fig. 4 showing the dehydration step being repeated a plurality of times), the final dehydration speed (“RPM3” fig. 6, col. 4, lines 44-48) of the washing tub is higher than the preceding dehydration speed (“RPM2” fig. 6) of the washing tub in each of the repeated dehydrations of the cloth (fig. 6 showing repeated dehydrations of the cloth where the maximum speed is RPM2), each of the repeated dehydrations of the cloth (fig. 4 showing a dehydration which is repeated) includes: pre-dehydrating (“balancing” fig. 4 showing the speed being accelerated to RPM1, col. 4, lines 1-9 describing the motor accelerating to a first rotation speed and maintaining that speed) the cloth by rotating the washing tub at a designated dehydration speed (“RPM1” fig. 4); and main-dehydrating (“accelerating” fig. 4) the cloth after the pre-dehydration (“balancing” fig. 4) of the cloth by rotating the washing tub at a dehydration speed (“RPM2” fig. 4) higher than that of the pre-dehydration of the cloth (“RPM1” fig. 4), further comprising finally disentangling cloth (fig. 6 and Figure A below) after the repetition of the dehydration of the cloth is completed (col. 4, lines 37-48 describing fig. 6 as showing that after the microcomputer determines that the repetition of dehydration is finished, it begins a normal spin-drying operation by accelerating to rpm 3), the disentanglement of the cloth (fig. 6

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and Figure A below) is performed one more time prior to the dehydration of the cloth ("normal spin-drying" fig. 6) so that the cloth is disentangled ("disentangling" fig. 4) before the cloth is dehydrated ("normal spin-drying" fig. 6), and sensing a quantity of the cloth put into the washing tub prior to the dehydration of the cloth (20, fig. 1, "laundry weight" col. 2, lines 48-67 describing the sensor unit 20 sensing washing information including laundry weight and then the microcomputer 40 controlling the spin-drying step based on information obtained through the sensor unit 20).

Figure A

FIG. 6



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Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (US Patent No. 6,553,596 B2) as applied to claims 1 and 4, and further in view of Slutsky et al. (US Pub. No. 2004/0221474 A1).

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12. In regards to claims 3 and 5, Kim et al. discloses the claimed invention, except for the initial dehydration speed of the washing tub in each of the repeated dehydrations of the cloth is higher than the initial dehydration speed of the washing tub in the preceding dehydration of the cloth and the dehydration speed of the washing tub is increased step-by-step in the main-dehydration of the cloth. However, Slutsky et al. teaches an initial dehydration speed (fig. 8 and Figure B below showing a higher initial dehydration speed) of a washing tub (11, fig. 1, para. 20, lines 1-8) in each of the repeated dehydrations (“to continue centrifugally drying the clothes” para. 41, lines 1-19 describing repeated dehydrations) of the cloth is higher (Figure B below showing labels for the higher and lower initial dehydration speeds, “preferably at a higher RPM” para. 41, line 11) than the initial dehydration speed of the washing tub in the preceding dehydration (fig. 8 and Figure B below showing a lower initial dehydration speed and para. 41, lines 1-19 describing the spin cycle centrifugally removing water by spinning the tub at about 450 RPM, a first pause, spinning the tub to about 750 RPM, and then a second pause) of the cloth and the dehydration speed of the washing tub is increased step-by-step (fig. 8 and Figure B below showing a step in increasing speed of main-dehydration, para. 41, line 17 describing the tub being rotated through multiple steps for the final spin where the steps in the final spin shown in fig. 8 are the same as the steps shown in Figure B below for the increasing speed of main-dehydration) in the main-dehydration of the cloth in order to prevent caking as the tub dehydration speed increases to increase the centrifugal removal of water (para. 41, lines 1-19). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to modify the Kim et al. reference, to include the initial dehydration speed of the washing tub in each of the repeated dehydrations of the cloth is higher than the initial

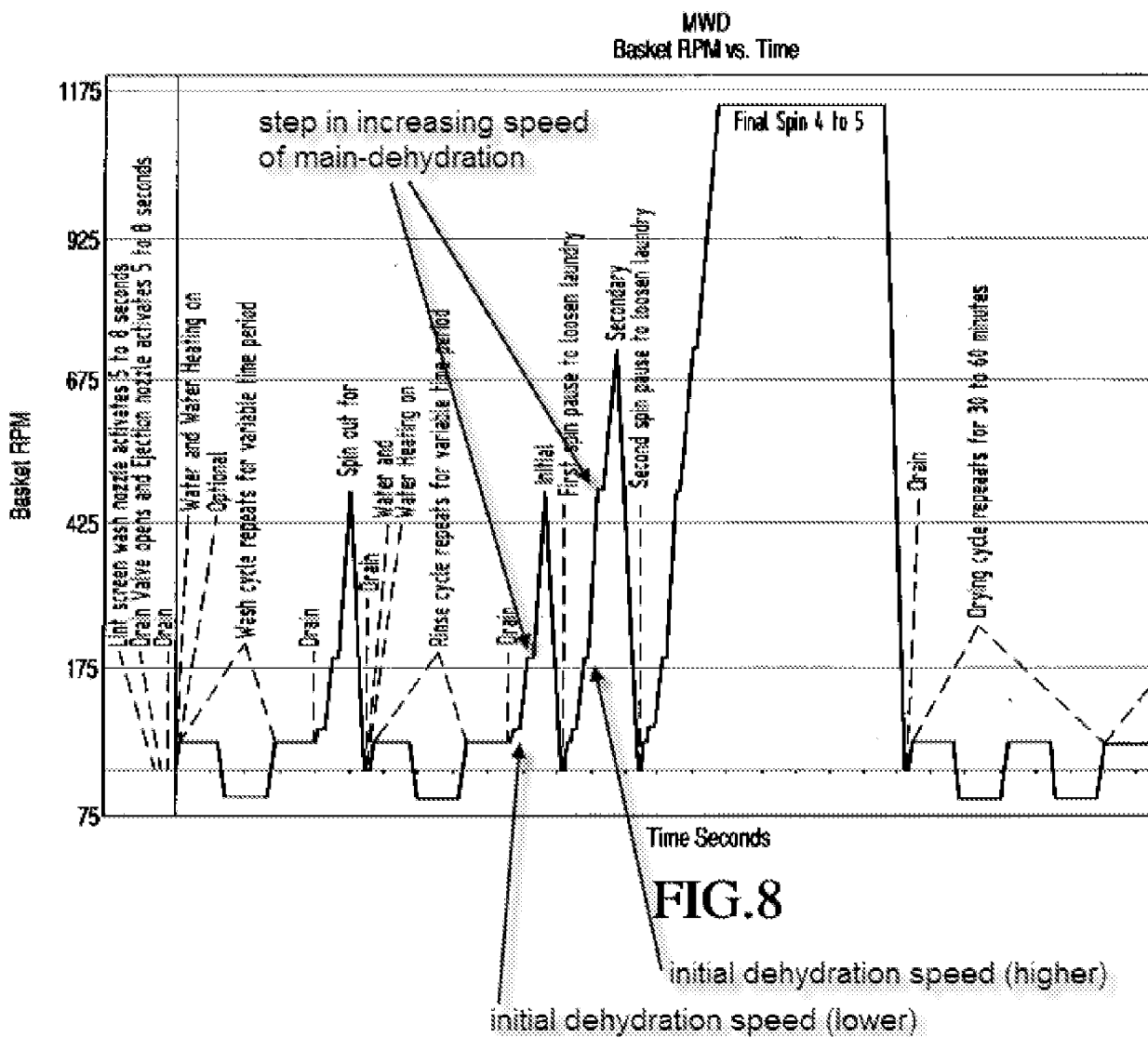
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dehydration speed of the washing tub in the preceding dehydration of the cloth and the dehydration speed of the washing tub is increased step-by-step in the main-dehydration of the cloth, as suggested and taught by Slutsky et al., for the purpose of preventing caking as the tub dehydration speed increases to increase the centrifugal removal of water. The Applicant is combining prior art elements according to known methods to yield predictable results. The Applicant is combining the prior art elements of repeated dehydrations of cloth by centrifugally rotating a washing tub to an initial dehydration speed and then a main-dehydration speed followed by stopping the motor and agitatedly rotating the tub prior to repeating the dehydration as disclosed by Kim et al. with the prior art elements of initial dehydration speeds increasing with each repeated dehydration and the main-dehydration speed of the tub increasing step-by-step as taught by Slutsky et al. according to known methods to yield the predictable result of the centrifugally rotating washing tub increasing in speed to a designated speed a plurality of times where each time the initial dehydration speed is greater than the prior initial dehydration speed and the main-dehydration speed increases step-by-step. One would be motivated to combine Kim et al. with Slutsky et al. because Slutsky et al. teaches increasing the speed of the tub during a plurality of dehydrations while pausing the tub between dehydrations to reduce caking of the clothing against the walls of the tub while achieving higher speeds to centrifugally dry the clothes and Kim et al. discloses increasing the speed of the tub in a stepwise manner during the normal spin-drying operation to avoid problems caused by abrupt increases in the degree of spin-drying (Kim et al., col. 4, lines 55-59) and Kim et al. could be improved by the gradual increasing of the speed of the tub through the repeated initial dehydration speeds so that greater amounts of water are centrifugally removed while minimizing the caking of the clothes against

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the walls and increasing the speed step-by-step during the main-dehydration to avoid problems caused by abrupt increases in the degree of spin-drying.

Figure B



13. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (US Patent No. 6,553,596 B2) as applied to claim 1, and further in view of Jeon et al. (US Patent No. 6,401,284 B1).

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14. In regards to claim 6, Kim et al. discloses the claimed invention including disentanglement (“disentangling” fig. 4) of the cloth is repeated plural times (fig. 4 showing the disentanglement of the cloth being repeated plural times), except for the disentanglement being repeated until the eccentricity of the cloth is less than a designated value. However, Jeon et al. teaches the disentanglement (“laundry disentangle alternately rotating step” fig. 6) being repeated until the eccentricity of the cloth is less than a designated value (fig. 6 showing the laundry disentangle alternately rotating step being repeated until eccentricity is less than a reference value, abstract, lines 12-21 describing the laundry disentangle alternately rotating step being repeated to eliminate eccentricity when it is greater than a preset value or proceeding to the water discharging step if the eccentricity is smaller than the preset value) in order to eliminate the eccentricity of the laundry if it is greater than a preset value and attenuate the vibration to a minimum (abstract, lines 16-21). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to modify the Kim et al. reference, to include the disentanglement being repeated until the eccentricity of the cloth is less than a designated value, as suggested and taught by Jeon et al., for the purpose of eliminating the eccentricity of the laundry if it is greater than a preset value. The Applicant is combining prior art elements according to known methods to yield predictable results. The Applicant is combining the prior art elements of a washing machine having disentanglement of cloth being repeated plural times as disclosed by Kim et al. with the prior art elements of a washing machine (Jeon et al., abstract, line 2) having a disentanglement being repeated until the eccentricity of the cloth is less than a designated value as taught by Jeon et al. according to known methods to yield the predictable result of the disentanglement of the cloth being repeated plural times until the eccentricity is less

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than a designated value. One would be motivated to combine Kim et al. and Jeon et al. because Jeon et al. teaches repeating a disentangling step until an eccentricity is eliminated and attenuating the vibration to a minimum and Kim et al. could be similarly improved by having its repeated disentangling step repeated when the eccentricity is greater than a designated value.

15. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (US Patent No. 6,553,596 B2) as applied to claim 1, and further in view of Imamura et al. (US Patent No. 5,870,905).

16. In regards to claim 9, Kim et al. discloses the claimed invention including the repetition of the disentanglement of the cloth plural times (fig. 4 showing the disentanglement step being repeated plural times), except for the duty value of a motor for rotating the washing tub is gradually increased. However, Imamura et al. teaches a duty value of a motor for rotating the washing tub (col. 18, lines 1-2 describing a load of the motor for rotating the tub) is gradually increased (fig. 11 showing forward and backward rotation of 40 rpm and then 50 rpm) in order to more efficiently perform the separation of the clothes from the walls of the tub (col. 13, lines 3-16). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to modify the Kim et al. reference, to include the duty value of a motor for rotating the washing tub being gradually increased, as suggested and taught by Imamura et al., for the purpose of more efficiently performing the separation of the clothes from the walls of the tub. The Applicant is combining prior art elements according to known methods to yield predictable results. The Applicant is combining the prior art elements of a washer machine having a repetition of the disentanglement of the cloth plural times as disclosed by Kim et al. with the prior art elements of a washing machine having the duty value for a motor for rotating a

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tub gradually increased as taught by Imamura et al. according to known methods to achieve the predictable result of having the duty value of a motor for rotating a tub gradually increased during the repetition of the disentanglement of the cloth plural times. One would be motivated to combine Kim et al. with Imamura et al. because Imamura et al. teaches gradually increasing the duty value of a motor for rotating a washing tub to more efficiently perform the separation of the clothes from the walls of a tub and the disentanglement of the cloth plural times by Kim et al. could be improved by the more efficient separation of the cloth from the walls through gradually increasing the duty value of the motor during disentanglement.

17. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (US Patent No. 6,553,596 B2) as applied to claim 10, and further in view of Geiger (US Patent No. 5,165,260).

18. In regards to claim 11, Kim et al. discloses the claimed invention, except for the dehydration of the cloth is performed when it is determined that the sensed quantity of the cloth is less than a predetermined value in the sensing of the quantity of the cloth; and the operation of the washing machine is stopped and an alarm indicating the excessive quantity of the cloth may be raised when it is determined that the sensed quantity of the cloth exceeds the predetermined value in the sensing of the quantity of the cloth. However, Geiger teaches the dehydration of the cloth ("spinning operations" col. 10, line 13) is performed when it is determined that the sensed quantity (col. 10, lines 4-15 describing weight measurements including sensing dynamic weight variations) of the cloth is less than a predetermined value (col. 10, lines 10-15 describing the control unit determining whether the sensed weight exceeds a certain amount and if not the spinning operations continue) in the sensing of the quantity of the cloth; and the operation of the

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washing machine is stopped (col. 10, lines 15-16 describing the spinning operation being stopped if the weight exceeds a value) and an alarm (“alarm” col. 10, lines 20-21) indicating the excessive quantity of the cloth (col. 10, lines 12-14) may be raised when it is determined that the sensed quantity of the cloth exceeds the predetermined value (col. 10, lines 10-21 describing an alarm if the weight exceeds a threshold value) in the sensing of the quantity of the cloth (“weight” col. 10, line 12) in order to initiate suitable measures for remedying imbalance using weight measurements (col. 10, lines 4-10). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to modify the Kim et al. reference, to include the dehydration of the cloth is performed when it is determined that the sensed quantity of the cloth is less than a predetermined value in the sensing of the quantity of the cloth; and the operation of the washing machine is stopped and an alarm indicating the excessive quantity of the cloth may be raised when it is determined that the sensed quantity of the cloth exceeds the predetermined value in the sensing of the quantity of the cloth, as suggested and taught by Geiger, for the purpose of initiating suitable measures for remedying imbalance using weight measurements. The Applicant is combining prior art elements according to known methods to yield predictable results. The Applicant is combining the prior art elements of a washer machine that senses the quantity of the clothes (Kim et al., col. 2, lines 54-55) with the prior art elements of a washer machine (Geiger, abstract, line 2) that senses the quantity of the clothes and continues with the dehydration when the sensed quantity is less than a predetermined value and the operation of the washing machine is stopped and an alarm indicating the excessive quantity of the cloth raised when the sensed quantity exceeds a predetermined value. One would be motivated to combine Kim et al. and Geiger because Geiger teaches a method for using a sensed

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quantity of clothes to remedy imbalances and Kim et al. which has a method for sensing quantity the quantity of clothes that could be improved by a remedy for imbalances.

19. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (US Patent No. 6,553,596 B2) as applied to claim 10, and further in view of Matsuo et al. (US Patent No. 5,092,140 provided by Applicant in IDS of 1/24/2006).

20. In regards to claims 12 and 13, Kim et al. discloses the claimed invention, except for initially disentangling the cloth so that the cloth is disentangled prior to the sense of the quantity of the cloth and the duty value of a motor for rotating the washing tub in the initial-disentanglement of the cloth is smaller than the duty value of the motor in the disentanglement of the cloth. However, Matsuo et al. teaches initially disentangling the cloth (“control of motor rotation” fig. 7, col. 7, lines 37-48 describing S1 in fig. 7 supplying a voltage to the motor to produce a number of revolutions) so that the cloth is disentangled (col. 7, lines 8-16 describing forward rotation, de-energizing, and then reverse rotation being shown in fig. 7) prior to the sense of the quantity (S10, fig. 7 showing the step of detection of amount of load) of the cloth and the duty value (E11, fig. 10(b), col. 7, lines 35-46 describing step S1 providing a duty value V11 to the motor corresponding to E11) of a motor (6, fig. 1) for rotating the washing tub in the initial-disentanglement (fig. 7 showing an initial-disentanglement used for determining the quantity of the cloth) of the cloth is smaller than the duty value (E24, fig. 10(b)) of the motor in the disentanglement of the cloth (col. 12, lines 15-44 describing the number of revolutions and load current of the motor being increased when the amount of clothes to be washed is large) in order to avoid insufficient dehydration when the amount of clothes to be washed is large (col. 12, lines 32-37). Fig. 14 shows an initial duty value V11 is produced in step W1, then a detecting

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load amount step W3, and finally the motor is set to a larger value in step W4. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to modify the Kim et al. reference, to include initially disentangling the cloth so that the cloth is disentangled prior to the sense of the quantity of the cloth and the duty value of a motor for rotating the washing tub in the initial-disentanglement of the cloth is smaller than the duty value of the motor in the disentanglement of the cloth, as suggested and taught by Matsuo et al., for the purpose of avoiding insufficient dehydration when the amount of clothes to be washed is large. The Applicant is combining prior art elements according to known methods to yield predictable results. The Applicant is combining the prior art elements of a washing machine having a sensor unit that senses the quantity of cloth (Kim et al., col. 2, lines 54-55) with the prior art elements of a washing machine (Matsuo et al., abstract, line 1) that senses the quantity of cloth by initially rotating the tub forward and reverse which would help disentangle the cloth prior to sensing the quantity of cloth in the tub and the duty value of the motor being increased when the amount of clothes to be washed is large as taught by Matsuo et al. according to known methods to yield the predictable result of initially disentangling the cloth so that the cloth is disentangled prior to the sense of the quantity of the cloth and the duty value of a motor for rotating the washing tub in the initial-disentanglement of the cloth is smaller than the duty value of the motor in the disentanglement of the cloth. One would be motivated to combine Kim et al. with Matsuo et al. because Matsuo et al. teaches an improved way of sensing the quantity of the cloth in a tub through forward and reverse rotation so that the duty value of the motor can be increased when the quantity of cloth is large and Kim et al. can be improved by the quantity sensing method and by the adjusting of the duty value of the motor in response to large quantities of cloth.

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21. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (US Patent No. 6,553,596 B2) in view of Imai et al. (US Patent No. 5,570,596 provided by Applicant in IDS of 1/24/2006).

22. Regarding claims 14 and 15, Kim et al. discloses a control apparatus (40, fig. 1) for controlling a semi-drying method of a washing machine (col. 2, lines 4-13 describing a method of controlling a spin-drying step in a washing machine), comprising: an operating unit ("key input unit" 10, fig. 1) for inputting a selected washing method (col. 2, lines 48-53 describing an operating unit 10 for allowing the user to input a washing mode) to the control apparatus (40, fig. 1) therethrough . . . in which dehydration ("intermittent spin-drying" fig. 4) and disentanglement ("disentangling" fig. 4) of cloth are repeated plural times (fig. 4 showing the dehydration and disentanglement being repeated plural times) so that the cloth is dehydrated to a designated degree ("the preset plural number of intermittent spin-drying operations provide sufficient time to discharge water to the outside" col. 4, lines 19-21), except for displaying a washing state based on the selected washing method thereon, a time setting means provided on the operating unit for setting a duration of a semi-drying operation, and the operating unit includes a semi-dry state display for displaying the remaining time of the duration of the semi-drying operation when the semi-drying operation is started. However, Imai et al. teaches displaying (fig. 11 showing a display) a washing state (73, 74, 75, 76, fig. 11) based on the selected washing method (72, fig. 11 showing standard, strong, pre-wash, blanket, soft, and tub cleaning) thereon, time setting means (67, fig. 11, col. 10, lines 53-55 describing a dehydration selecting key 67 for setting a dehydration period of time) provided on an operating unit (fig. 11) for setting a duration of a semi-drying operation ("dehydrating period of time" col. 10, lines 54-55), the operating unit (fig.

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11) includes a semi-dry state display (77, fig. 11, col. 10, lines 55-60 describing a time display section 77 that displays time corresponding to step display sections 73 to 75 where display section 75 is dehydration as shown in fig. 11) for displaying the remaining time of the duration of the semi-drying operation (75, fig. 11) when the semi-drying operation is started (75, fig. 11, "display sections 73 to 75" col. 10, line 59) in order to display a remaining amount of time of a wash step (col. 3, lines 22-26). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to modify the Kim et al. reference, to include displaying a washing state based on the selected washing method thereon, a time setting means provided on the operating unit for setting a duration of a semi-drying operation, and the operating unit including a semi-dry state display for displaying the remaining time of the duration of the semi-drying operation when the semi-drying operation is started, as suggested and taught by Imai et al., for the purpose of displaying a remaining amount of time of a wash step. The Applicant is combining prior art elements according to known methods to yield predictable results. The Applicant is combining the prior art elements of a display (Kim et al., 70, fig. 1) and a spin-drying time (Kim et al., col. 1, line 42) as disclosed by Kim et al. with the prior art elements of displaying a washing state on a selected washing method, a time setting means on the operating unit for setting a duration of a semi-drying operation and a semi-dry state display as taught by Imai et al. according to known methods to yield the predictable result of having a washer machine having a display for the washing state, a time setting means for a semi-dry operation, and a semi-dry state display to display the remaining time. One would be motivated to combine Kim et al. with Imai et al. because Imai et al. teaches an operating unit that gives a user greater control over the time of the semi-drying operation, displays a washing state

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and displays the remaining time where Kim et al. which gives a user the ability to manually select options (Kim et al., col. 1, lines 43-45) could be improved by giving the user the ability to manually select the time of the semi-drying operation and see the washing state and time remaining of the washing machine.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to COREY HALL whose telephone number is (571)270-7833. The examiner can normally be reached on Monday - Friday, 9AM to 5PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Rinehart can be reached on (571)272-4881. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Examiner, Art Unit 3743

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